

Answer for Question #44430 – Math - Algebra

1. The measure of the largest angle of a triangle is 10 more than 3 times that of the smallest. It is also twice the measure of the second angle. What are the measures of the three angles of the triangle?

Solution:

We will make the next notation:

- the largest angle = x
- the smallest angle = y
- the second angle = z

After description of the task we can build next system of equations:

$$\begin{cases} x = 3y + 10^\circ \\ x = 2z \\ x + y + z = 180^\circ \end{cases}$$

(Sum of 3 angles of triangle always=180)

From this:

$$\begin{cases} y = \frac{x - 10^\circ}{3} \\ z = \frac{x}{2} \\ x + \frac{x - 10^\circ}{3} + \frac{x}{2} = 180^\circ \\ 6x + 2x - 20^\circ + 3x = 1080^\circ \\ 11x = 1100^\circ \\ x = 100^\circ \\ \begin{cases} x = 100^\circ \\ y = 30^\circ \\ z = 50^\circ \end{cases} \end{cases}$$

Answer:

The angles of the triangle are:

- the largest angle = 100°
- the smallest angle = 30°
- the second angle = 50°